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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/538,045

06/29/2005

Hendrik Oevering

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07/09/2008

NIXON & VANDERHYE, PC

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ARLINGTON, VA 22203

EXAMINER

VADEN, KENNETH I

ART UNIT

PAPER NUMBER

4162

MAIL DATE

DELIVERY MODE

07/09/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/538,045

Applicant(s)

OEVERING ET AL.

Examiner

KENNETH VADEN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2006.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-18 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 08 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date 9/6/2005
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
3. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over de Rooij (US 3,997,607) and further in view of Benneker, et al. (WO 01/94296 A1).

4. Regarding claim 1, de Rooij "607" teaches a process involving the use of an aqueous solution comprising hydroxylammonium and a phosphate such as phosphoric acid (col. 3, line 58-63), and nitric acid (Col 4, line 5-21). De Rooij does not teach the use of the equation to regulate the hydroxylammonium concentration. Benneker "296" teaches the use of range of 1.0 mol/L- 2.5 mol/L for the hydroxylammonium concentration to prevent the decomposition of hydroxylammonium (page 3, line 15-35). It would have been obvious to one of ordinary skill in the art at the time of the invention in view of Benneker "296" to use a range of concentrations to prevent the decomposition of hydroxylammonium.

5. Regarding claim 2, de Rooij "607" does not teach the use of equations to regulate the concentrations of chemicals used in the process. Benneker "296" teaches the use of ranges for the concentrations of phosphates of the aqueous reaction medium of 2 mol/L – 4.5 mol/L (page 7, lines 15-28). He also teaches the use a preferred pH range between 1.0 and 4.0 for the hydroxylammonium synthesis zone (page 9, lines 19-20). It would have been obvious in view of Benneker "296" that one having ordinary skill in the art to modify the concentration of phosphates and the pH range to accommodate the reaction.

6. Regarding claim 3, de Rooij "607" teaches the use of the process involving the addition of hydroxylammonium salt to the buffered aqueous reaction medium containing a buffered solution of such acid as phosphoric acid (col. 3, lines 58-63).

7. Regarding claim 4, de Rooij "607" teaches the reaction of hydroxylammonium and cyclohexanone forming cyclohexanone oxime in the oximation zone (col. 3, lines 43-50).
8. Regarding claim 5, de Rooij "607" teaches the use of a cyclic process in which the aqueous solution leaves the cyclohexanone oxime synthesis reactor and in which hydroxylammonium is added to the aqueous reactor medium (col. 3, lines 38-41 and 58-63) and nitric acid is returned to the added to the solution to prepare for the reaction in the hydroxylammonium synthesis zone (col. 4, lines 35-42).
9. Regarding claim 6, de Rooij "607" teaches the use of the mixture of hydroxylammonium with phosphoric acid and nitric acid is included in the cyclic process (col. 3, lines 58-63 and col. 4, lines 21-26).
10. Regarding claim 7, de Rooij "607" teaches the use of an aqueous reaction medium leaving the hydroxylammonium reactor is used to add hydroxylammonium to the mixture of phosphoric acid and nitric acid to the aqueous acid solution (col. 3, lines 38-41 and col. 4, lines 1-21).
11. Regarding claim 8, de Rooij "607" teaches feeding the third acidic aqueous solution to a hydroxylammonium synthesis reactor where hydroxylammonium is prepared by catalytic reduction of nitrate with hydrogen (col. 3, lines 38-42). and Benneker "296"(page 9 lines 13-15).
12. Regarding claim 9, de Rooij "607" teaches the mixing of the third acidic aqueous solution mixed with nitric acid (col. 4, lines 1-21). De Rooij does not teach the temperature range for these solutions. Benneker "296" teaches the use of the

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temperature range of 20-100 degrees C to be used during this step of the process, Benneker "296" (page 9, lines 13-15). It would have been obvious in view of Benneker "296" to one skilled in the art to use applied heat in this temperature range for this step to speed up the mixing of solution components.

13. Regarding claim 10, de Rooij "607" teaches the use of feeding the fourth acidic aqueous solution to the hydroxylammonium synthesis reactor in which hydroxylammonium is prepared by catalytic reduction of nitrate with hydrogen (col. 3, lines 40-41).

14. Regarding claim 11, de Rooij "607" teaches the use of the process to for adding hydroxylammonium to phosphoric acid and nitric acid (col. 3, lines 58-63 and col. 4, lines 1-21).

15. Regarding claim 12, de Rooij "607" teaches the use of the aqueous reaction medium leaving the hydroxylammonium synthesis reactor is used to add to phosphoric acid and nitric acid to hydroxylammonium (col. 3, lines 58-63).

16. Regarding claim 13, de Rooij "607" teaches the use of the process of mixing phosphoric acid and nitric acid in a hydroxylammonium reactor in which hydroxylammonium is prepared by catalytic reduction with hydrogen (col. 3, lines 38-41).

17. Regarding claim 14, de Rooij "607" teaches the use of the above acidic aqueous solution and the aqueous nitric acid solution in which hydroxylammonium is prepared by catalytic reduction of nitrate with hydrogen (col. 3, lines 38-41).

18. Regarding claim 15, de Rooij "607" teaches the process of cycling an aqueous reaction medium from a hydroxylammonium synthesis reactor in which hydroxylammonium is prepared for a cyclohexanone oxime synthesis reactor is produced by reaction of hydroxylammonium with cyclohexanone (col. 3, lines 43-50).

19. Regarding claim 16, de Rooij "607" teaches the use of the aqueous reaction medium leaving the cyclohexanone oxime synthesis reactor to be used as the first acidic acid solution (col.3, lines 58-64).

20. Regarding claim 17, de Rooij "607" teaches the use of the second acidic aqueous solution obtained by absorbing nitrogen oxides in the aqueous solution (col. 1, lines 52-57).

21. Regarding claim 18, de Rooij "607" teaches mixing the first acidic aqueous solution with the second acidic aqueous solution but does not teach the use of a temperature range for the mixture. Benneker "296" teaches the use of a temperature range of 20 and 100 degrees C to facilitate mixing of the solution components. It would have been obvious in view of Benneker "296" to one having ordinary skill in the art to add heat to the reactants in order to accelerate the reaction between the involving the first and second acidic aqueous solutions producing hydroxylammonium (page 9, lines 13-16).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KENNETH VADEN whose telephone number is (571)270-5824. The examiner can normally be reached on Monday - Thursday 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571 272 1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KV

/Jennifer McNeil/

Supervisory Patent Examiner, Art Unit 4162